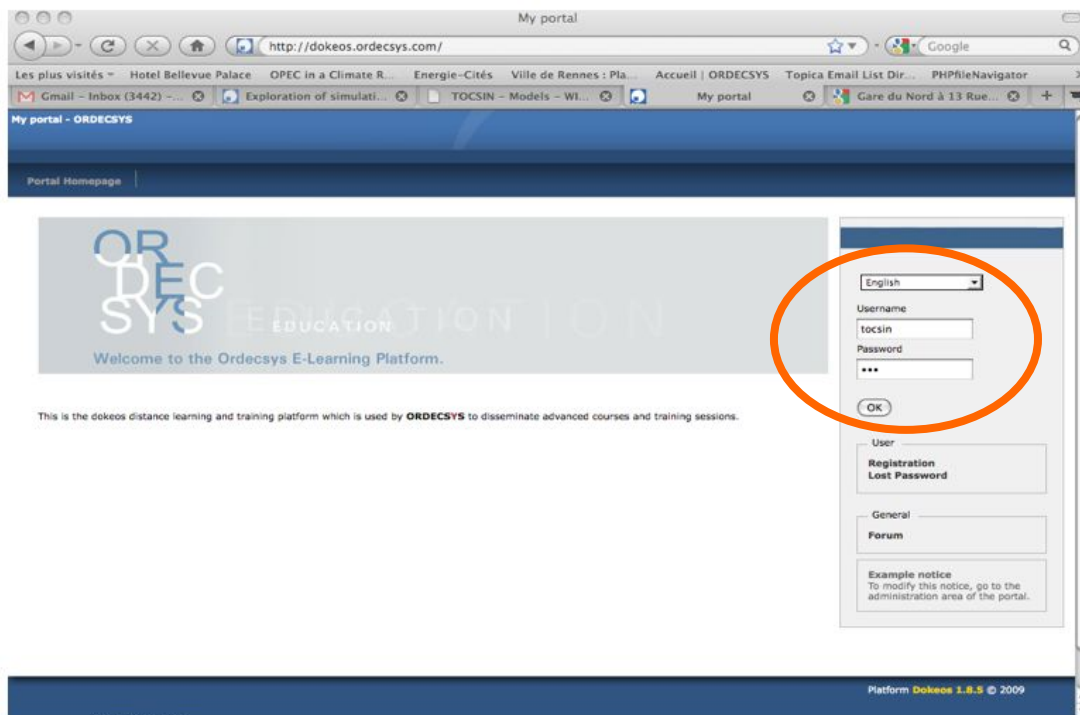


An Internet Self-Learning Tool for Model-Based Scenario-Analysis on International Technology Cooperation and Climate Policy

Alain Haurie
ORDECSYS

This document provides a description of the internet self-learning tool for model-based scenario analysis on international technology cooperation and climate policy.



The self-learning tool is installed on the dokeos learning platform maintained by ORDECSYS.

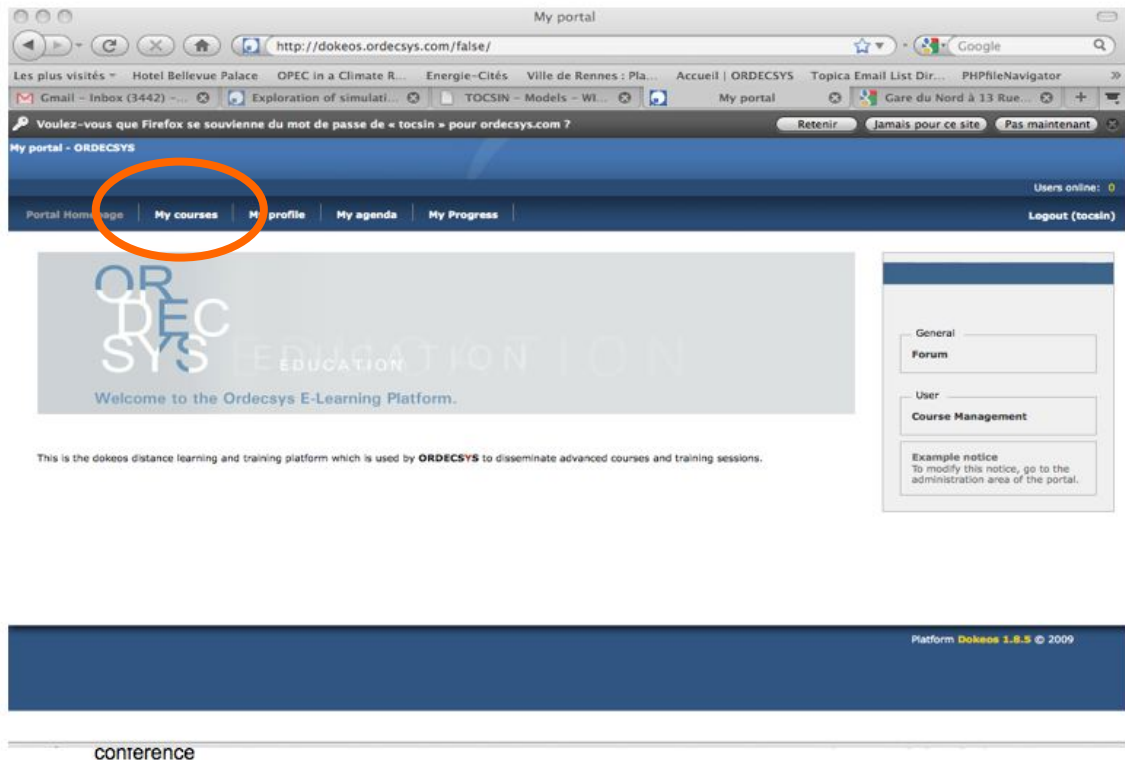
Its address is

<http://dokeos.ordecsys.com>

The user must use the following identifier

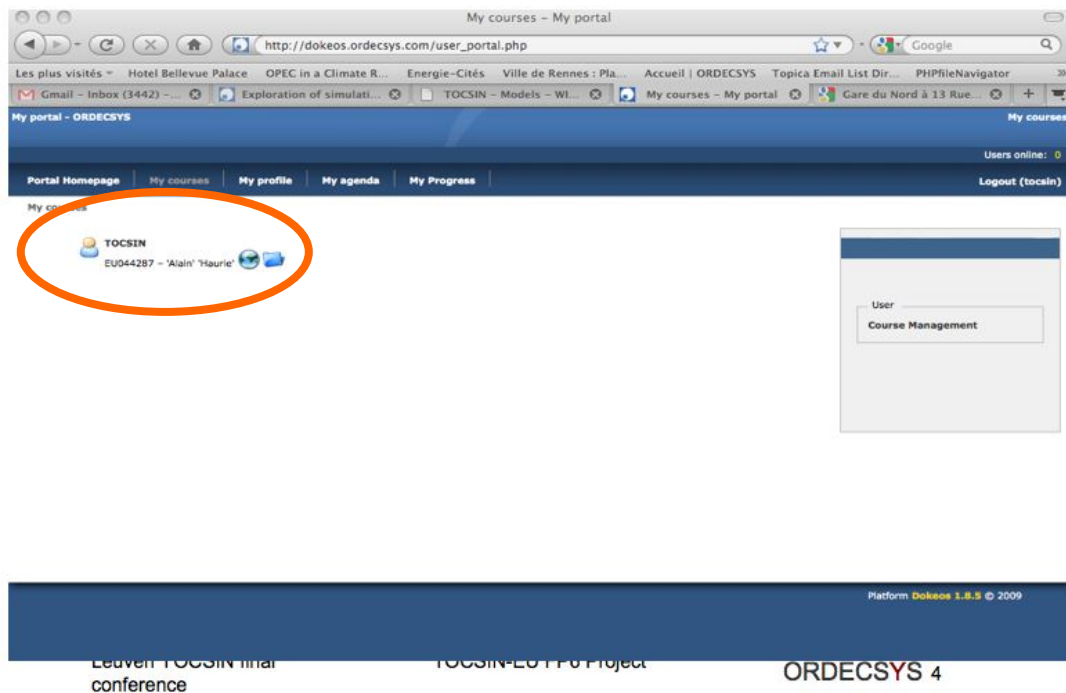
Login: **tocsin**

Password: **fp6**



The user is now in the dokeos platform environment.

He must select “**My courses**” on the menu line.



This displays the name of the self-learning course. The user must click on it to launch the self-learning session.

TOCSIN - EU044287 - My portal

http://dokeos.ordecys.com/courses/EU044287/

My portal - ORDECYS


TOCSIN EU044287 - 'Alain' 'Haurie'

Users online: 0 (1 In this course)

Portal Homepage My courses My profile My agenda My Progress Logout (tocsin)


Welcome to the TOCSIN training modules


An introduction to the use and exploitation of integrated assessment models



- This training course will give you the opportunity to understand and exploit the models used in the TOCSIN EU-044287 project.
- TIMES / TIAM is a bottom up energy / economy / environment model.
- GEMINI-E3 is a top-down GEE .
- WITCH is a dynamic game economic growth model with detailed energy & climate modules.
- OBOE is an oracle-based optimization technique used for the computation of equilibrium solutions.

Technology-oriented cooperation and strategies in India and China

This opens the welcome page which is indicated by the **home icon** .

By clicking on the **course content icon**  the user will see the organization of the self-learning course.

Portal Homepage My courses My profile My agenda My Progress Logout (tocsin)

TOCSIN > Course description

Topics

Contents

LP1: Introduction to the TOCSIN models

Chapter 1: Presentation of the TOCSIN project

1. Introduction to TOCSIN
2. Goals and targets of the project
3. Presentation of the different teams involved
4. Workpackages
5. Deliverables

Chapter 2: Introduction to the TIAM modelling environment

1. A brief description of TIAM
2. A presentation of TIMES-Integrated-Assessment-Model
3. Representation of China and India in TIAM.

Chapter 3: Introduction to the GEMINI-E3 modelling environment

1. The structure of the GEMINI-E3 model
2. GEMINI-E3 on the web
3. Representation of China and India in TIAM.

Chapter 4: Introduction to the WITCH modelling environment

1. The structure of the WITCH model
2. Delayed participation analysed with WITCH


Chapter 5: Introduction to OBOE

1. Defining "Sursus"
2. Dynamic game model solved with OBOE
3. A stochastic version (with different coalitions)

Chapter 6: Cooperative game-theoretic approach

1. An introduction to dynamic cooperative game modelling
2. A model of pollution abatement negotiations
3. Cooperative game-theoretic approach to environmental problems.

The course is organized in a series of **modules** regrouped in two **learning paths**.

Clicking on the **learning path** icon  one obtains the list of the two LPs. Click on the first LP opens a stage where the successive steps of each module can be selected and displayed.

On the left side one can select in the **navigation zone** the steps in each module of the learning path. The corresponding activity is shown in the window on the right side.

One can also use the **arrows** in bottom-left to navigate through the different steps.

Course Home

- Introduction to TOCSIN models
 - Welcome!
 - Presentation of TOCSIN
 - Introduction to TOCSIN
 - Goals and targets of the project
 - Presentation of the different teams involved
 - Workpackages
 - Deliverables
 - Integrated assessment
 - Introduction to the TIAM modelling environment
 - A brief description of TIAM
 - Tocsin Presentation/TIAM
 - China and India in TIAM
 - Introduction to the GEMINI-E3 modelling environment
 - GEMINI-E3
 - GEMINI-web-ride
 - Introduction to the WITCH modelling environment
 - WITCH Technical Report 1
 - Innovation in Climate Policies
 - Delayed Participation of LDCs in climate policies

Work-package No ^[1]	Workpackage title	Lead contractor No ^[2]	Person-months ^[3]	Start month ^[4]	End month ^[5]	Deliverable No ^[6]
1	Defining climate policy scenarios & RD&D cooperation	3	23	0	30	1.1-1.4
2	Bottom-up techno-economic modeling for China and India in the global context	6	38	0	30	2.1-2.3
3	Top-down CGE modeling for China and India	1	24	0	30	3.1-3.3
4	Integration of bottom-up and top-down models	1	29	0	30	4.1-4.3
5	Effectiveness and acceptability of technology-oriented climate cooperation with DCs	7	39	17	30	5.1-5.3
6	Dissemination activities	1	12	0	30	6.1-6.7
7	Management	1	4	0	30	7.1-7.5
TOTAL			169			

^[1] Workpackage number. WP 1 – WP n.
^[2] Number of the contractor leading the work in this workpackage.
^[3] The total number of person-months allocated to each workpackage.
^[4] Relative start date for the work in the specific workpackages, month 0 marking the start of the project, and all other start dates being relative to this start date.
^[5] Relative end date, month 0 marking the start of the project, and all ends dates being relative to this start date.
^[6] Deliverable number. Number for the deliverable(s)/result(s) mentioned in the workpackage: D1 - Dn.



For example, clicking on this step one sees the list of work-packages in the research program.

Course Home

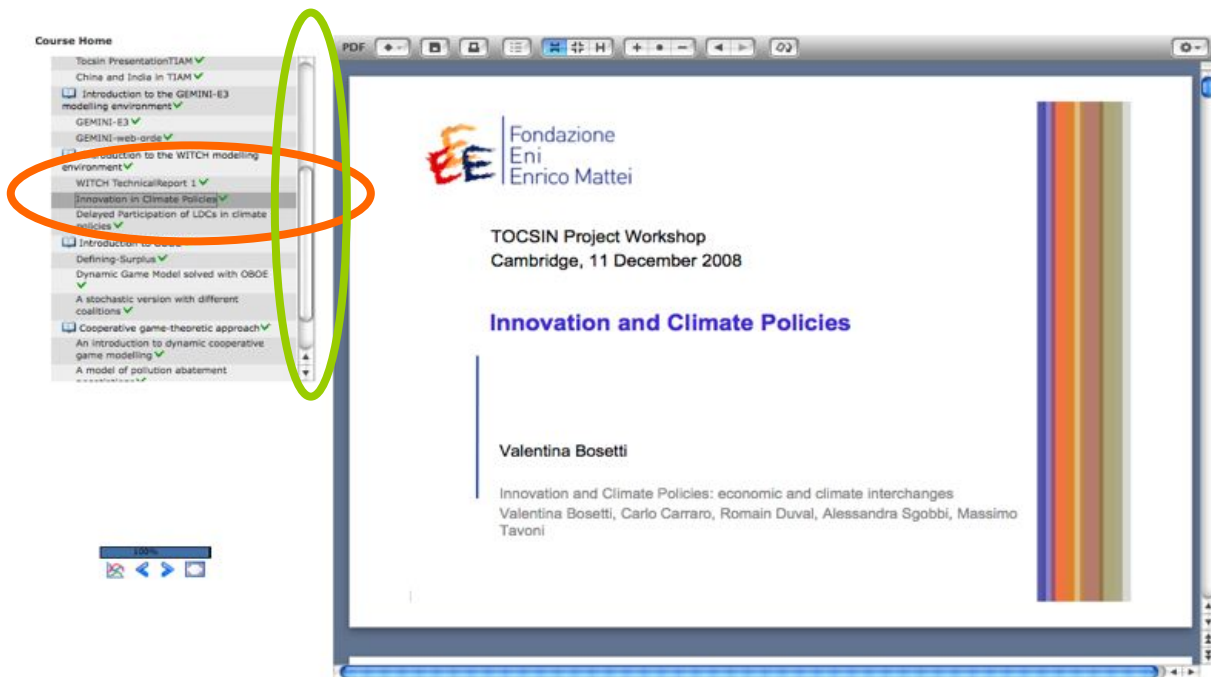
- Goals and targets of the project
- Presentation of the different teams involved
- Workpackages
- Deliverables
- Integrated assessment
- Introduction to the TIAM modelling environment
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- GEMINI-E3
- GEMINI-web-ride
- Introduction to the WITCH modelling environment
- WITCH Technical Report 1
- Innovation in Climate Policies
- Delayed Participation of LDCs in climate policies

Introduction to
TIMES Integrated Assessment Model (TIAM)

Maryse Labriet¹, Richard Loulou¹, Amit Kanudia²
¹ Kanlo Consultants, Spain and France
² Kanors Consulting, India

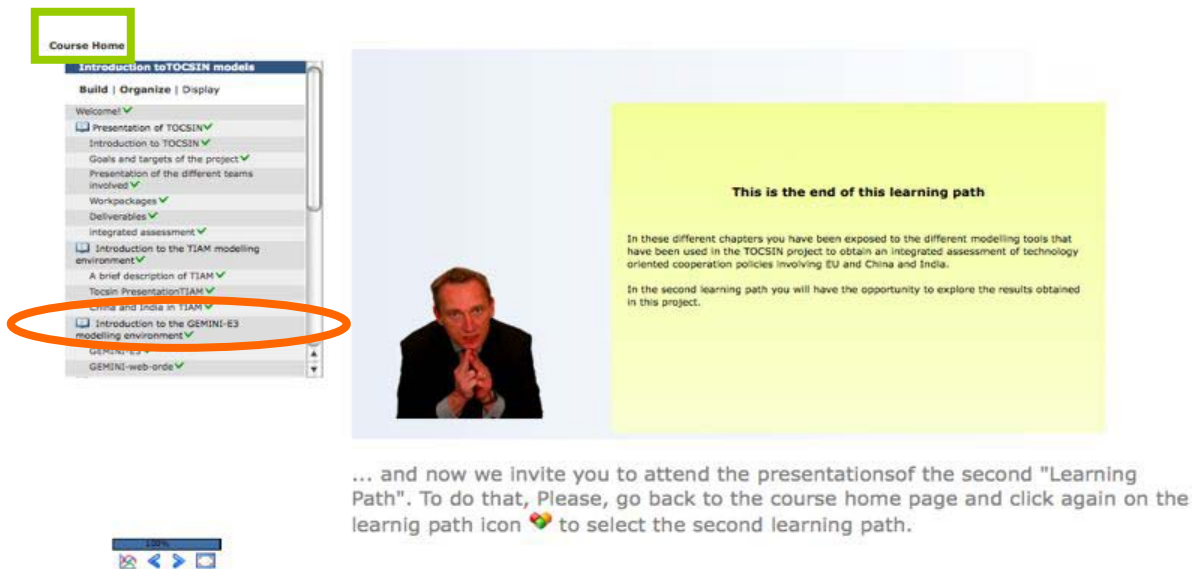



Clicking on this step one obtains a presentation of the TIAM modeling tool.



Clicking on that step one has a presentation of the use of WITCH to study the role of innovation in climate policies.

Notice the **lift-bar** on the right side of the navigation zone to get access to all the steps in the learning path.



At the end of the learning path a brief summary is provided and an indication is given on how to proceed to go to the second learning path. Click on “**Course home**”

My portal - ORDECSYS TOCSIN EUD44287 - 'Alain' 'Haurie'


Users online: 0 (1 in this course) | Help

Portal Homepage My courses My profile My agenda Reporting Portal Administration Logout (tocsin)

TOCSIN

Welcome to the TOCSIN training modules


An introduction to the use and exploitation of integrated assessment models



- This training course will give you the opportunity to understand and exploit the models used in the TOCSIN EU-044287 project.
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- WITCH is a dynamic game economic growth model with detailed energy & climate modules.
- OBOE is an oracle-based optimization technique used for the computation of equilibrium solutions.

Technology-oriented cooperation and strategies in India and China

Terminé

We are back to the home page, Please, click on the **learning path** icon .



Voulez-vous que Firefox se souvienne du mot de passe de « tocsin » pour ordecsys.com ? Retenir Jamais pour ce site Pas maintenant

My portal - ORDECSYS TOCSIN EUD44287 - 'Alain' 'Haurie'

Users online: 0 (1 in this course)

Portal Homepage My courses My profile My agenda My Progress Logout (tocsin)

TOCSIN > Learning path

Name	Progress
 Introduction to TOCSIN models	<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%
 Exploration of simulation results	<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%

Platform Dokeos 1.8.5 © 2009


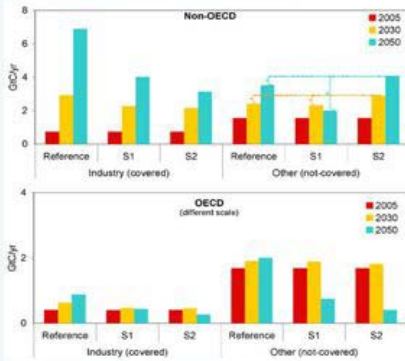
Now select the second learning path.

Course Home

Exploration of simulation results

- Welcome to the second learning path ✓
- Policy brief ✓
- Presentation of policy brief on the TOCSIN web page ✓
- Coupling TIAM and GEMINI-E3 ✓
- Use of coupled BU-TD models to assess policy scenarios ✓
- A game of timing for emission rights supply, with burden sharing ✓
- Sharing a global safety emissions budget over the period 2005-2050 ✓
- Simulations of technological progress with the WITCH model ✓
- Evaluation of international climate policy architectures with WITCH ✓
- End of second learning path ✓

Welcome to this second learning path where we shall present different uses of the TOCSIN models for assessing technological cooperation policies.

Please, use the navigation panel on the left side of the screen to go through the different steps.

100%

This learning path concerns the exploration of the simulations realized with the models.

TOCSIN TECHNOLOGY ORIENTED COOPERATION AND STRATEGIES IN INDIA AND CHINA



MODELS & TOOLS SIMULATIONS POLICY INSIGHTS

POLICY BRIEF | TOCSIN DESCRIPTION

This policy brief summarizes the main policy-relevant results of the TOCSIN project.

The FP6 TOCSIN project has evaluated climate change mitigation options in China and India and the conditions for strategic cooperation on research, development and demonstration (RD&D) and technology transfer with the European Union. In particular, the project investigated the strategic dimensions of RD&D cooperation and the challenge of creating incentives to encourage the participation of developing countries (DCs) in joint-2012 GHG emissions reduction strategies and technological cooperation. This policy brief summarizes the main policy-relevant results of the project.

It is necessary to act soon if one wants to stay close to 2 degrees warming.

We investigated the possibility and consequences of a 3.3 W/m² radiative forcing scenario. Under this scenario, the goal of limiting global temperature increase to 2 degrees Celsius is not achievable. Climate policy attitudes change, also in India and China, but

Contents

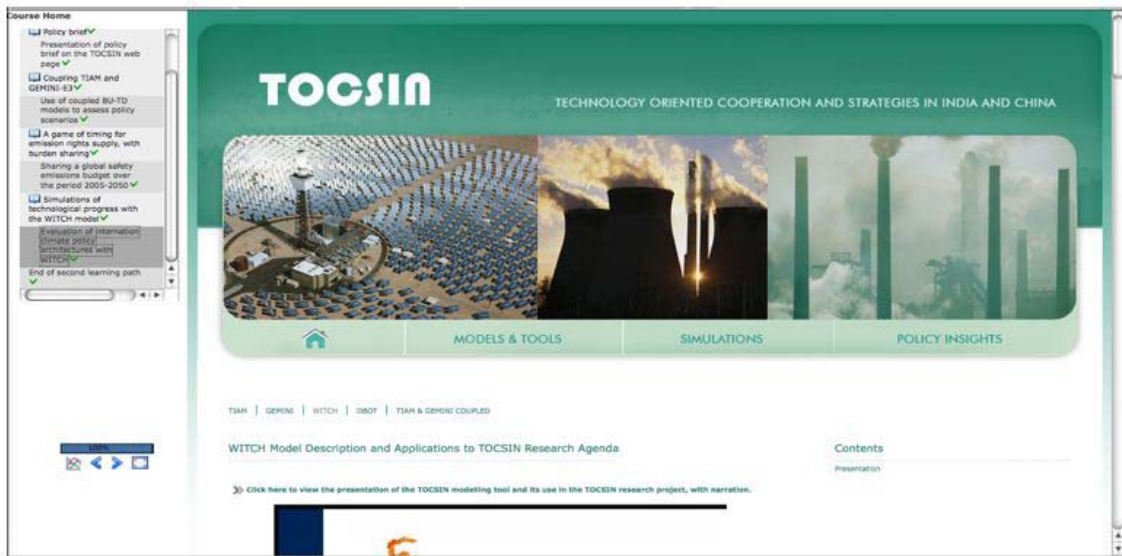
This policy brief summarizes the main policy-relevant results of the TOCSIN project.

It is necessary to act soon if one wants to stay close to 2 degrees warming.

Low carbon energy R&D and technology transfer are much talked about, very necessary, and to date completely non-existent.

Climate policy attitudes change, also in India and China, but

The first module in this learning path is a visit to the TOCSIN web page where the “policy brief” is displayed.



Then for each model, a learning step leads to the corresponding “SIMULATIONS” page on the TOCSIN web site.



For example, here we see the page of introduction to the simulations realized with the WITCH model.

On this page the user can select one simulation among an ensemble of possible ones.

Course Home

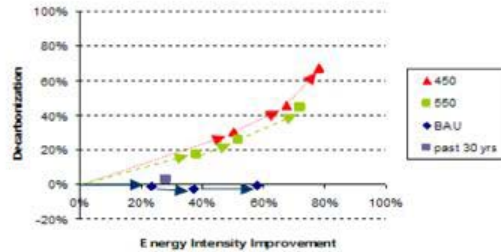
- Policy brief ✓
 - Presentation of policy brief on the TOCSIN web page ✓
- Coupling TIAM and GEMINI-E3 ✓
 - Use of coupled BU-TD models to assess policy scenarios ✓
- A game of timing for emission rights supply, with burden sharing ✓
 - Sharing a global safety emissions budget over the period 2005-2050 ✓
- Simulations of technological progress with the WITCH model ✓
 - Evaluation of international climate policy architectures with WITCH ✓
- End of second learning path ✓

100%

[Click here to download a pps diaporama \(without narration\)](#)
[Click here to view the text of the narrations.](#)

Mitigation options and costs

Necessary decarbonization of the economy to reach the CO2 concentration targets



[Click here to go to the interactive scenario exploration page](#)

Evolution of the technology mix in the electricity sector



Here, for example, one explores the necessary decarbonization of the economy in order to reach the CO2 concentration target.

Course Home

- Policy brief ✓
 - Presentation of policy brief on the TOCSIN web page ✓
- Coupling TIAM and GEMINI-E3 ✓
 - Use of coupled BU-TD models to assess policy scenarios ✓
- A game of timing for emission rights supply, with burden sharing ✓
 - Sharing a global safety emissions budget over the period 2005-2050 ✓
- Simulations of technological progress with the WITCH model ✓
 - Evaluation of international climate policy architectures with WITCH ✓
- End of second learning path ✓

100%

HOME | MODELS & TOOLS | SIMULATIONS

TIAM | GEMINI | WITCH | OBOT | TIAM & GEMINI COUPLED

SIMULATION TEST

Please choose the parameter to view: concentration GHG

submit

Test 1


The graph plots GHG concentration (Y-axis, 0.00 to 1,000.00) against time (X-axis, 2005 to 2087).

Year	3.5 W/m2	4.0 W/m2	4.5 W/m2	Base
2005	452.29	452.29	452.29	452.29
2007	462.88	462.88	462.88	462.88
2010	468.03	468.03	468.03	468.03
2020	488.88	488.88	488.88	488.88
2030	516.47	516.47	516.47	516.47
2040	593.32	593.32	593.32	593.32
2050	616.37	616.37	616.37	616.37
2065	663.30	663.30	663.30	663.30
2087	704.80	704.80	704.80	704.80

Through the use of this interactive tool one can produce dynamically different graphic displays which show the trajectories of emissions, GHG concentrations, temperature increase, etc... according to different scenarios.

Course Home

- Exploration of simulation results
 - Welcoming to the second Learning Path
 - Policy brief
 - Presentation of policy brief on the TOCSIN web page
 - Coupling TIAM and GEMINI-E3
 - Use of coupled BU-TD models to assess policy scenarios
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 - Simulations of technological progress with the WITCH model
 - Evaluation of international climate policy architectures with WITCH
 - End of second learning path



You have explored a few simulations done with 3 types of TOCSIN models

- A Bottom-Up technology rich partial equilibrium model (TIAM)
- A Top-Down general equilibrium model (GEMINI-E3)
- Two integrated models (WITCH and the coupled TIAM/GEMINI model)

Policy insights have been obtained

- On the necessity to act soon
- On the possibility to design a fair burden sharing for emissions abatement
- On the role of technological learning and dissemination in future climate negotiations.

This is the end of this second learning path. Please feel free to revisit these steps, download documents and go directly to the TOCSIN web site to continue to explore the many facets of this research programme...

At the end of the second LP the user is informed that she/he can always come back to this site or visit directly the TOCSIN web site to further explore the simulation results of the TOCSIN models.



TOCSIN

TECHNOLOGY ORIENTED COOPERATION AND STRATEGIES IN INDIA AND CHINA

MODELS & TOOLS | SIMULATIONS | POLICY INSIGHTS

POLICY BRIEF | TOCSIN DESCRIPTION

This policy brief summarizes the main policy-relevant results of the TOCSIN project.

The FPN TOCSIN project has evaluated climate change mitigation options in China and India and the conditions for strategic cooperation on research, development and demonstration (RD&D) and technology transfer with the European Union. In particular, the project investigated the strategic dimensions of RD&D cooperation and the challenge of creating incentives to encourage the participation of developing countries (DCs) in post-2012 GHG emissions reduction strategies and technological cooperation. This policy brief summarizes the main policy-relevant results of the project.

Contents

This policy brief summarizes the main policy-relevant results of the TOCSIN project.

It is necessary to act soon if one wants to stay close to 2 degrees warming.

Low carbon energy R&D and technology transfer are much talked about, very necessary, and to date

The TOCSIN web site is currently accessible at the following address
<http://tocsin.ordecys.com>

It will also be accessible directly from the EPFL TOCSIN web page.